

# THE LANDSCAPE AND SPATIAL ANALYSIS OF ROMAN PERIOD ARCHAEOLOGICAL SITES AT THE EASTERN BORDER OF DOLLKEIM-KOVROVO/SAMBIAN-NATANGIAN CULTURE

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## Abstract

The article deals with characteristics of the cultural landscape of archaeological sites of Dollkeim-Kovrovo (Sambian-Natangian) culture dating from the Roman Period. The study is based on a spatial analysis, and is built on the currently known information, drawn from prewar archives, publications, research from the second half of the 20th century, and on the results of field surveys conducted by the author. GIS-based techniques were applied. The archaeological sites from the Roman Period located on the eastern border of Dollkeim-Kovrovo Culture in the valleys of the River Pregolja and the River Dejma are the focus of attention. In order to carry out a comparative analysis, information on the burial grounds of the 'cultural core' on the Samland Peninsula is used. The spatial layout of the burial grounds and settlements is analysed. As a result, a pattern for the spatial evolution of Dollkeim-Kovrovo culture in the Roman Period and the testing of the hypothesis of the existence of 'contact zones' in the West Balt cultural circle are proposed for consideration.

**Key words:** southeast Baltic region, West Balt cultural circle, Roman Period, Dollkeim-Kovrovo/Sambian-Natangian culture, River Pregolja valley, landscape analysis, geoinformation systems.

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## Introduction

This is a study of the spatial and landscape characteristics of the sites disposed amid the West Balt cultural circle<sup>1</sup> on the eastern border of Sambian-Natangian (Dollkeim-Kovrovo) culture. The survey includes archaeological sites from the area, embracing the river valley of the Pregolja and Dejma (at present a branch of the River Pregolja ending at the Curonian Lagoon), and the Instruch river valley, a territory connected with the West Lithuanian group. The Lava and Angrapa, left-bank tributaries of the River Pregolja, connect it with the southeast part of the Baltic belt as well: the lake plateau of the Masurian Lakeland, dotted with sites of Bogaczewo and Sudovian cultures. Archaeological sites of the valley of the River Pregolja, its branches and its largest tributaries, could have been the link connecting it with neighbouring areas. Their inventory features some 'prestige' goods connected with the amber trade (including Roman imports), and a number of metal elements of attire with character-

istics common to Western Lithuanian and Bogaczewo cultures.

Thematic justification determines the lack of the coverage of culture-historical processes of the first half of the first millennium AD in this area, whilst a comparison of sites of the heartland and the border territories has since the 1970s and 1980s been one of the basic approaches to the analysis of artefacts of the West Balt cultural circle. Coincidentally, traditional approaches and the data collected on the 'cultural core' on the Samland Peninsula underlie the study of artefacts of Dollkeim-Kovrovo culture, the central community of the above-mentioned cultural circle.

First, issues of the delimitation of the contact zones, the level of investigation of the sites of the Roman and Migration period at the eastern border of the Dollkeim-Kovrovo culture, are examined. Data have been determined due to the necessity of verification recent archaeological data, newly opened archives of scholars of the first half of the 20th century, and publications.

The analysis of the problem is based on comparative-analytical methods and new research prospects. GIS instruments are used for the landscape characteristics. The provision of a rationale for the procedure of the analysis is argued in a separate chapter. Finally, the spatial placement of the burial grounds and settlements on the eastern border of Dollkeim-Kovrovo culture are analysed. A picture of the dynamics of the area in

<sup>1</sup> The 'West Balt cultural circle' is regarded as the assembly of archaeological cultures of the Roman Period from the territory of the former East Prussia (Engel 1933, 262-286, 1935, 77-86, Figs.42-48; Engel, La Baume, 1937, 144ff., Fig. 29; Jaskanis, 1977, 239ff., Figs. 1-2). Afterwards, all cultural units that were settled in present-day Lithuania during the Roman Period were ascribed to the West Balt cultural circle (Nowakowski 2008, 44-49, Fig. 1).

the Roman Period and the testing of the hypothesis of availability of contact zones are initiated.

### Issues of the delimitation of contact zones in Dollkeim-Kovrovo culture

In modern times, Sambian-Natangian (Dollkeim-Kovrovo) culture is not regarded exclusively as a system for the spatio-temporal location of finds. Social anthropology approaches are applied to define it. It is defined as central among the cultures of the West Balt cultural circle. With respect to the landscape, Sambian-Natangian archaeological culture occupies the Sambian morainic plateau, the Pregolja glaciolacustrine valley, and, partly, the Polessk morainic plain (see Fig. 1). Meanwhile, the pivotal sites on the north of the Samland Peninsula are the most extensively studied (Kulakov 2007, 2014; Skvortsov 2004/2005, 2010). Recent investigations of the Dollkeim-Kovrovo culture areas bordering the area of Wielbark culture dealt with a general description and the selected publication of materials on specific sites of the Vistula Lagoon coastland (Skvortsov 2012; Kulakov 2015).

The issue of the existence of contact zones and definitions of West Balt cultural circle cultures is controversial. Researchers in the first half of the 20th century (Nils Åberg, Erich Blume, Aarne Tallgren) laid the groundwork for dividing the sites of Baltic ethnic groups into separate communities. The spatio-temporal pattern of the delineation of archaeological cultures was taken as the basis (see Khomiakova 2014b, earlier literature *ibid*). Archaeological groups in the southeast Baltic were lumped into the 'West Balt cultural circle of flat graveyards', divided into separate culture groups (Engel 1933, 1935). A series of studies in the second half of the 20th century kept within the same framework. The idea of the indivisibility of the Balts, and the existence of some integral community, evolving continuously since the Bronze Age up to the Early Middle Ages, was endorsed by researchers such as Harri Moora (1953, 1958), Pavel Kushner (Knyshev) (1951) and Valentin Sedovs (1992). Within this concept, the community of the burial grounds situated on the Samland Peninsula was considered one of the culture groups relating to the Aestii/Old Prussians. The term 'Sambian-Natangian culture/group' is used in studies by Frida Gurevich (1960), Vladimir Kulakov (2003) and Mark Shchukin (1994). On the other hand, since the 1960s, a trend has emerged in archaeological science to divide the integral 'West Balt' community into separate cultures, and to choose not to associate the communities directly with specific ethnic groups. Marian Kaczyński (1976), Jerzy Okulicz (1973), Wojciech Nowakowski (1983) and Jan Jaskanis (1977),

drawing on the eponymous sites, identified Bogaczewo culture and the Sudovian cultural groups, outlined their essential features, and singled out local variants. Similar research was performed with respect to the material culture of west Lithuania as well, where West Lithuanian Stone Circle Grave culture was identified (Tautavičius 1980; Michelbertas 1986; Banytė-Rowell, Bitner-Wróblewska 2005, 105-120; Bliujienė 2013, 78-89, Figs. 2, 24). The burial grounds community of the Samland Peninsula was defined by W. Nowakowski by relying on the reference site of Kovrovo (Dollkeim) as Dollkeim-Kovrovo culture (Nowakowski 1991, 1996).

The idea of the existence of local variants and contact zones in Dollkeim-Kovrovo culture was put forth as early as the prewar period. Works by Karl Engel contain assumptions defining the border zone of the culture as a separate Instert-Pregel culture group (Instert-Pregel Gruppe) (Engel 1933, 278, 1935, 82), situated within the territory of the Darkehmen, Gumbinen and Instertburg districts. The sites were acknowledged as understudied. They were characterised by Sambian forms of ceramics, and some artefacts of types specific to East Masurian and Memel cultures. The grave goods from the Wengerin and Althof burial grounds (see Engel, La Baume 1937, 262, Fig. 29) were cited as an example of 'hybrid' forms featuring both Sambian and Masurian characteristics. The burial customs of the Instert-Pregel group were similar to those of Sambian culture during 'phase B', according to the chronological scheme elaborated by Otto Tischler. During 'phase C', with the advent of a formidable structure over the grave in the form of a stone pavement, these customs had more resemblance to those of East Masuria. A special role was allocated to the border zone between Sambia and Nadruvia/Nadrauen, where important sites such as Klein Fließ and Perdollen were identified.

The 'contact zone' between East Masurian and Sambian-Natangian groups, located within the territory of the historic region of Barta/Barten, which presumably occupied the eastern part of the Gerdauen and Rastenburg districts (Engel 1933, 278ff.; Engel, La Baume 1937, 145ff.) was singled out. The basic reason for singling it out was its geographical location. The burial grounds in this region were characterised mainly by Sambian burial customs and types of grave goods.

Later, the idea of the eventual existence of contact zones within the West Balt cultural circle was endorsed by the Polish researchers E. Okulicz (1973, 355-366) and J. Jaskanis (1977, 239ff., Maps 1-2). But the question concerning the existence of these zones remained unanswered.

## The level of investigation of sites of the Roman and Migration Period on the eastern border of Dollkeim-Kovrovo culture

The central part of the Kaliningrad region connected with the border zone of Dollkeim-Kovrovo culture is still understudied. The 'Catalogue of the Cultural Heritage Sites of the Region' (Katalog 2005) lists just about 40 archaeological sites in this area, of which only half can be dated to the Roman and Migration Period. It is worth noting that only study materials from the second half of the 20th century and published data on sites known to German archaeologists provided this database. The enormous array of information stored at the moment in the papers of prewar scholars was not taken into account.

The initiation of the study of archaeological sites from the Roman and Migration Period in the central part of the Kaliningrad region correlates to the rise of antiquarianism in the last quarter of the 19th century. At that time, the sites located here were unearthed mainly by locals and antiquarians. So, for example, the Soldatovo/Friedrichsthal burial ground was found by peasants in 1885, and was explored in 1889 by G. Bujack (1891, 14ff.). The Rovnoje/Imten burial ground was unearthed by amateurs and by the landowner Loreck in 1881–1884 (1883, 35ff.). The Kholmy/Popelken-Bioten burial ground was also discovered circa 1879 by the landowner Loreck, who carried on the 'excavation' of the site in 1883 and 1884. This site was partly examined by G. Bujack in 1881 (1890, 177–187). The first finds from the Gvardeysk/Koddien burial ground date from 1887 or so, and they should also be qualified as stray finds (Bujack 1887, 153). Grave goods, including Roman imports, at the Divnoje/Ilischken burial ground were found in 1888 by labourers who hit them while digging a grave in the local cemetery (Bujack 1891, 12ff.). The Livny/Stobingen burial ground was repeatedly excavated by locals and a local medical doctor called Sommer in the second half of the 19th century (1883, 80ff.), and the Mayskoje/Poßritten and Slavyanskoje/Löbertshoff burial grounds in the 1870s and 1880s by Scherbring (1883, 102–110, 111ff.). Archive material and 'Sitzungsberichte der Altertumsgeellschaft Prussia' contain a number of mentions of the understudied burial sites of the Roman Period in the Labiau and Wehlau districts: Turgenevo/Legitten, Polessk/Labiau, Osokino/Blöken, Rechnoje/Magotten, Ivanovka/Groß Bärwalde, Goldzhausen, Rybkino/Annenhof and Sibirskoje/Moritten (Bujack 1891, 14; Hollack 1908, 88; Engel, La Baume 1937, 262, 267; R. Grenz archive). The Tyulenino/Viehof, Izobilnoye/Klein Fliess and Zarechyje/Caymen burial grounds

were studied in the 1900s (Bezenberger 1904, 95ff.; Heydeck, 1900, 57ff.; Hollack 1908, 21, 170). Large-scale excavations were launched during the first third of the 20th century in the Botanicheskoye/Wengerin, Chernyakhovsk/Althof, Suvorovo/Zohpen, Petino/Perdollen, Lunino/Sanditten, Rodnikovo/Friedensfelde, Shosseynoje/Kraupischkehmen and Vysokoje/Mehlawischken burial grounds. Some of the material from these excavations was published (Gaerte 1931, 125–134; Engel 1931, 47–64; Engel, La Baume 1937, 146, 262, 269, 270; Grunert 1937, 7–61, 1939, 36–44, 44–56). In general, information on sites in the east of the Kaliningrad region is sketchy by nature, or survived in the form of some snippets. Records of grave furnishings of burial grounds in the central part of the Kaliningrad region are not included in general works from the late 19th century (Tischler 1891; Tischler, Kemke 1902). Data on the location of these burial grounds is lost, field records have not survived to the present day. In most cases, they did not even exist. The location of archaeological sites mentioned in the synoptic work by E. Hollack (1908) is very approximate. As is clear from the list produced, the burial sites were the only objects of research.

Information on the settlement situation contained in prewar research is scarce. It is based, first of all, on data collected in the 1820s by the topographer I. Gise, who chartered several hundred settlements in East Prussia, and later provided the basis for E. Hollack's research (1908), and then H. Crome's work (1940), in which data on East Prussian hill-forts was gathered, and sketches, as well as their location, were given. The data on unfortified settlements known to prewar archaeologists has not come down to us.

The research activities were resumed in the postwar period. Field surveys were carried out in the late 1940s by F. Gurevich and N. Gurina on the Maryino/Der Burgwall bei Arnau and Zaozeryje/Der Pillenberg bei Rodmannshöfen hill-forts in the lower reaches of the Pregolja. Both sites are mentioned in H. Crome's work. Meanwhile, it was F. Gurevich and N. Gurina who first located the unfortified settlements on their periphery (Zaozeryje-1, some finds from the region of the Maryino hill-fort<sup>2</sup>); trial trenching on the hill-forts also took place (Gurevich 1949, 1961).

Purposive field surveys aimed at searching for Bronze Age items in the central part of the Kaliningrad region were conducted in the late 1960s by V. Titov, who explored, inter alia, the burial ground at Lunino/Sanditten (Titov 1969, 15ff., Figs. 55–60), where there were

<sup>2</sup> The history of research and the characteristics of the archaeological situation in this micro-region are detailed in the research paper by the author (see Khomiakova 2013, 91ff.).

graves from the Roman Period, among others. In the 1970s, V. Timofeev studied the array of objects dating from the Stone Age, among which were sites situated in the valleys of the rivers Dejma and Pregolja: finds in the vicinity of the villages of Sholokhovo and Saranskoye, in the Zaborye Polesk district; and the location of the burial mound at Klein Naujock (on the outskirts of the village of Stroyny) (Timofeev 1972).

Field surveys were conducted by V. Kulakov in the 1970s-1980s, who not only located and studied sites known since prewar times,<sup>3</sup> but also found a number of new ones. They include unfortified settlements: Gvardeysk 1–3, Kudryavtsevo 2–3 (in the vicinity of the Kuglacken hill-fort), Lunino, Istrovka 1–3, and Vyborgskoje (by the Pelonen hill-fort). The dating of these sites is a ‘broad’ one, over the period from the first millennium AD to the Early Middle Ages, and it relies on traditional techniques of analysis of ceramic material. V. Kulakov studied about 30 sites in the course of work in the Gvardeysk and Polesk districts in the Pregolja and Dejma river valleys. Two of them date from the period of Roman influence: the burial ground at Lunino/Sanditten, studied after V. Titov, and the Suvorovo/Zohpen burial ground (Kulakov 1985). E. Kamenetskaya carried out pinpoint research of the archaeological horizons of the Vyborgskoje/Pelonen and Zaborje 2/Lischkau hill-forts, known since prewar times (Kamenetskaya, 1978).

From the 1990s onwards, information on the archaeological sites in this part of the Kaliningrad region has appeared mainly by means of rescue archaeology directed at the research and preservation of archaeological sites about to be destroyed to make room for large public-works projects, like construction activity, earthworks, reclamation work, or other forms of land development. Materials from these projects are not easily introduced for scientific use, and the relevant information is accessible only in the Scientific Sectoral Archive of the Institute of Archaeology of the Russian Academy of Sciences (Pronin 1989; Gusakov 2002; Baklanova, 2002, 2003; Goverdovskij 2008; Goverdovskaja 2008). The Botanicheskoye/Wengerin, Chernyakhovsk/Althof, Rodnikovo/Friedensfelde Roman Period burial grounds were located thanks to a survey conducted by E. Kalashnikov (2004). Small-scale excavations were undertaken on the territory of the Chernyakhovsk/Althof burial ground. It has been established that the burial ground was severely damaged due to economic activities and the urban sprawl (Kalashnikov 2010, 101ff.). A.E. Efimov (2009) conducted excavations on the territory of the settlement

of Fevral'skoje, in the Polesk district, dated to the first millennium AD. The largest-scale works were undertaken on the Berezovka/Gross Ottenhagen burial ground in 2003-2004 by T. Ibsen and K. Skvortsov (Ibsen, Skvortsov 2004; Skvortsov 2014).

## Analysis procedure

The notion of the cultural landscape involves multi-variable data on the nature of the anthropogenic environmental impact, natural conditions, and religious beliefs (David, Thomas 2008, 27-44; Kowalewski 2008, 242ff.). Its spatial aspect is fundamental to the present-day Samland Peninsula and its vicinity, which were one of the most heavily populated areas of the southeast Baltic region over the course of different historical eras. The sites, heterogeneous in time, are in close proximity to each other, and several chronological horizons can be recorded on a series of archaeological objects. The physical landscape of the first millennium AD also differed from the modern one.

An analysis of sites of Dollkeim-Kovrovo culture from the Roman Period was previously carried out exclusively on the basis of the comparative analysis method and data mapping. This method was applied to the West Balt cultures for the first time by H. Jankuhn (1950), and it is still widely used at present (e.g. Nowakowski 1996; Kulakov 2003; Skvortsov 2013). The most substantiated study of the spatial location of West Balt sites (burial grounds) is the work by J. Jaskanis (1974). The main feature of these sites, according to J. Jaskanis, is the preferred position at a distance of one to five kilometres from each other, on dominant heights or hilly surfaces, where they ‘predominate’ over the landscape, with some sort of waterway within visual range (Jaskanis 1974, 38ff., 42). However, it helps to remember that this is just a common feature, applicable to a generalised description of the spatial location of Roman Period sites in the West Balt cultural circle. The analysis carried out by J. Jaskanis was based on the then accessible data. In order to characterise a set of features of the localisation and topography of the objects, data from sites of Bogaczewo and Sudovian cultures was used. In relation to the Sambian-Natangian area, only data on flat graves was analysed, without considering the settlement situation.

In order to define the maximum concentration level of the archaeological sites of different types, the pattern of the mutual spatial arrangement of specific areas of the archaeological culture, the level of gravitation of remote sites toward certain zones of maximum concentration, and to test the hypothesis of the existence of local groups within the Sambian-Natangian area, one

<sup>3</sup> Predominantly hill-forts: Lischkau; Gr. Keylau; Langendorf; Kuglacken; Schloßberg von Taplacken; Kl. Pöppeln/Schwedenschanze; Lablacken/Kl. Droosden.

can use the spatial analysis of archaeological evidence by means of modern GIS (Afanas'ev et al. 2004, 60; Korobov 2008).

For the purposes of modelling long-distance communications between entities of Dollkeim-Kovrovo culture, we used the ArcGis 9.3.1. Spatial Analyst tools. A synchronous approach to the study of the sites is applied. Verified data on entities within the bounds of the whole culture is taken into account. An analysis of the immediate vicinity of the sites, their density and buffer zones, is performed with the use of data on 214 flat graves with confirmed dating: 111 burial grounds for phase I (Early Roman Period); 211 sites for the beginning and the 'mature stage of the Late Roman Period', phases II-III; 214 for the end of the Late Roman Period and the beginning of the Early Migration Period, phases III-IV.<sup>4</sup> Sixty unfortified settlements from the first half of the first millennium AD, located predominantly in the eastern part of the area of Dollkeim-Kovrovo culture, were analysed. Only unfortified settlements were taken into consideration in the course of the analysis of the settlement sites, as, in general, the earliest fortified settlements/hill-forts date back to a period starting no earlier than the seventh to eighth centuries AD (Gurevich 1951, 91-98; Kulakov 1990, 9-17; Krenke et al. 2013, 159). The issues of the 'broader' dating of some hill-forts from the first millennium AD (e.g. Zaostryvye 1/ Rantau-Barthenen, Gorbatočka/Schwedenschanze bei Pokalkstein, Zhavoronkovo/Gerswischken on the Samland Peninsula, Timofeyevka 1/Tammowischken, Kudryavtsevo 1/Kuglacken, Kras-

naya Gorka /Pillukztis-Nettinen in the River Pregolja valley) require closer attention.

The sites analysed are grouped together on the principle of their positional relationships; the buffer zones between them were mapped. A figure of 30 kilometres was used as a maximum distance for modelling the buffer zones, i.e. the approximate diameter of the cultural core of Dollkeim-Kovrovo archaeological culture, matching the territory of the Samland Peninsula. This distance also correlates to one day's march on a horse (Fehner 1981, 139-145).

## An analysis of the archaeological situation in the Roman Period

### Burial sites

The distribution of flat burial grounds which first appeared in phase I of Dollkeim-Kovrovo culture testifies to the absence of a strict division into discernible territorial groups within its area. The distance between the objects in much of the region does not usually exceed six kilometres (Fig. 2.1). The calculation of the density of the graves enables us to single out the area of greatest concentration on the Samland Peninsula. The density of burial sites here amounts to six or seven per 30 kilometres (Fig. 2.2). This area coincides with the 'culture core' of the given archaeological community, identified by convention, dating from O. Tischler's time (Tischler 1891, 97ff.), also reflecting the high level of knowledge about the archaeological sites in the given area.

A number of areas situated along the west and north coast of the Samland Peninsula stand out by the average distance between objects not exceeding three kilometres (Fig. 2.2). The first of these areas is located in the vicinity of the present-day urban-type settlement of Yantarny, on the River Primorskaja: Okunevo/Grebiten, Povarovka/Kirpehnen, Putilovo/Corjeiten, Morozovka/Sacherau, Putilovo 2/Gauten, Chekhovo/Godnicken, Parusnoje/Gaffken, and Kruglovo/Polenen burial grounds.

The second one is near the present-day towns of Svetlogorsk and Pionersky, between the rivers Motyl and Zabava: Dobroye-Beregovoje (Gora Velikanov/Tenki-eten), Zaostryvye-Yaroslavskoye/Schlakalken II-IV, Schlakalken 5, Dubrovka/Regehnen, Vodnoje-Bogatovka/Syndau, Obukhovo/Lixeiden, TernovkaPertelnicken, and on the River Svetlogorka (Grachevka/Craam, Svetlogorsk 1-2/Kobjeten-Rauschen) and Svetlogorsk-Maysky/Raushen-Cobjeiten Abbau bei St Lorenz).

<sup>4</sup> The dating of most known flat graves of Dollkeim-Kovrovo culture is based exclusively on archaeological data. In the course of the development of GIS, the following chronology was applied: phase I (period B<sub>2</sub> of the Central European chronology: last quarter of the first century AD to the mid-second century AD) – 'Early Roman Period', phase II (period B<sub>2</sub>/C<sub>1</sub>–C<sub>1a</sub>: second half of the second century AD to the first decade of the third century AD) – 'younger phase' of the 'Late Roman Period; phase III (period C<sub>1b</sub>–C<sub>2</sub>: most of the first half to the beginning of the second half of the third century AD) – 'the mature stage of the Late Roman Period'; phase IIIa (period C<sub>2</sub>: second half of the third century AD to the beginning of the fourth century AD); phase IV (period D: first half of the fourth century AD to the beginning of the second half of the fifth century AD) (for details see Khomiakova, 2012a, 15ff., 2012b, 255ff.). Both absolute and relative dating of the artefacts is taken into account in the database. The issue of dating the settlements is more complicated. Only a limited number of them are dated at present by means of natural scientific methods (e.g. Krenke et al. 2013), and this information remains mostly unpublished. Conventionally, the collation of finds with data on flat graves or attributed data from neighbouring areas of Lithuania and Poland serves as a basis for dating settlements. That is why the settlements, as a rule, have a 'broad' dating, in the range of the first half of the first millennium AD or the first millennium AD.

The shaping of a cluster of sites starts in the interfluvium of the rivers Medvezhya and Kurovka (Svobodnoje/Perkuiken, Berezovka/Schugsten, Peshkovo/Steinerkrug, Morshanskoje/Schreitkauken, Luzhki/Kiauten, Kovrovo/Kadicks-Berg, Kovrovo/Dollkeim), and the River Trostyanka (Klintsovka/Wargenau-Kunterstrauch, Kamenka/Michelau).

The Early Roman Period cluster in the middle reaches of the River Nelma also gravitates toward this group of sites (Khrustalnoye I–II/Wiekau I–II, Saalem/Rogehnen III, Bugrovo/Wargen, Orekhovo-Cherepanovo/Schuditten). The Dollkeim-Kovrovo ‘culture core’ is defined exactly by this sort of cluster. It is suggested that such a concentration of sites is possible only in the context of the very high population density in this relatively small area, given that by the early second century AD all of these sites had already been active. It is worthy of note that the sites dating from the previous period, the Early Iron Age and Pre-Roman Period, are also identified within the bounds of these clusters. They include burial mounds in the vicinity of the Yantarny-Kruglovo/Polehnen, Putilovo/Gauten settlement; on the coastline of Svetlogorsk–Blankenberg/Blanken-Berg bei Lauknicken, Romanovo/Watzum (see Fig. 1). The delineated groups of sites correlate well with primary deposits of amber cast by waves on to the Baltic shore, and with outcrops of amber-bearing ‘blue earth’ (Jaskanis 1974, 26ff.). Less dense groups with a three to six-kilometre length of buffer zones between sites, and with a density of one to three sites per 30 kilometres, are located:

- along the shore of the Vistula Lagoon (Moskovskoye 1/Partheinen, Vesjoloje/Balga, Primorskoje Novoje/Wolittnik, Krasnodonskoje/Keimkallen, Bogdanovka/Gnadenthal, Ladushkin-Beregvoje 1, 2/Patersoft, Domnieksruh, Ushakovo 2/Brandenburg, Ushakovo/Tengen);
- in the lower reaches of the River Pregolja, at the point where the River Guryevka joins it (Oktyabrsky/Liep, Alleya Smelykh/Rosenau, Yaltinskaja/Kupferberg, Bolshoye Isakovo/Lauth, Zaozerye/Lapsau, Poddubnoje/Niedtkeim-Furstenwalde, Kumachevo/Tropitten, Guryevsk/Neuhausen, Guryevsk-Novy/Trausitten) (Fig. 2.2).

These groups of sites correspond to trade routes leading to the Elbląg Upland and the Vistula Delta (the area of Wielbark culture) connected with the ‘amber trade’ (Jaskanis 1974, 27; Skvortsov, 2013, 36ff.). The sites situated in the lower reaches of the River Pregolja are 300 to 1,000 metres from the Pregolya riverbed (Oktyabrsky/Liep, Alleya Smelykh/Rosenau, Yaltinskaja/Kupferberg), with elevation points four to six metres above the Pregolja river level.

Eastern and central parts of the Kaliningrad region are situated within the limits of the Pregolya glaciolacustrine valley, between the Sambian-Instruch and Baltic terminal moraines. In the Early Roman Period, the upper reaches of the River Pregolja and its tributaries represent the periphery of the culture, with one or two known sites per 30 kilometres, located at nine to 12 kilometres from each other (Fig. 2.1).

The sites are concentrated along the region’s traffic artery, the River Pregolja, its main tributaries, and the River Dejma, and their location and concentration result from the physical features. The valley of the River Pregolja is situated in a broad plain formed by streams of glacial meltwater, doubly bounded by steep slopes. The river valley is between one and 1.5 kilometres wide. Most of the valley is occupied by a backswamp depression (Berenbejm 1999, 43ff., 207ff.; Orlenok, Seliverstov 2002, 30ff., 44ff., 62ff.). The ‘earliest’ Roman Period sites, Berezovka/Gross Ottenhagen, Golovenskoje/Willkuhn, Gvardeysk/Koddien, Rovnoje/Imten and Gremiachyje/Birken, emerge in the middle reaches of the River Pregolya, in a sloping part of the valley, where sand and gravel sediments formed by fluvio-glacial action, and lining the river valley, give rise to ‘sandbars’. This association with the valley’s side terraces is likely to determine the considerable distance from the Pregolya riverbed to the burial sites. The burial grounds of Berezovka/Gross Ottenhagen and Gvardeysk/Koddien are located 800 to 2,400 metres off the River Pregolja. The burial grounds of Rovnoje/Imten, enjoying an advantageous geographical location on the top, southern and southeastern slopes of the local upland, on the side of the southern valley, are more than 3,000 metres off the river (Khomiakova 2014a, 24–34). The sites’ elevation points are four to six metres above the Pregolja river level. All of these sites are situated in the valleys of small rivers-tributaries of the Pregolja, dissecting its valley sides. The Rovnoje/Imten burial ground sweeps away to the second terrace above the flood-plain of the River Bobrovaja. The distance between the sites and the watercourses, therefore, does not exceed 600 metres (see Figs. 4, 5, 6.1).

The sites unearthed in the valley of the Pregolja’s tributary Angrapa/Węgorapa, Timofeyevka/Tammoschken, Sinyavino/Kampischkehmen, belong to a different landscape zone, the Vishtynets highlands, with its ridges and mounds. They are concentrated at the short distance of 300 to 600 metres from the riverbed, but their elevation points are different, 20 to 30 metres above the Angrapa river level. The burial grounds situated in areas bordering the area of Bogaczewo culture share the same features: Rechkalovo/

Abschermeningken, Serovo/Auxkallen and Ozyorsk/Darkehmen (Fig. 4).

Sites dating from the previous period (Lunino/Sanditten, Drusker Forst-Espenheim) are also identified on the eastern border of Dollkeim-Kovrovo culture, and in the middle reaches of the River Pregolja (see Fig. 1). Their grave goods include some items dating back to both the Early Iron Age and the Roman Period (Buck 1889, 113-120; Engel 1931, 47-64). They feature different landscape characteristics. The Lunino/Sanditten burial ground is characterised by its location on the top of the local morainic plateau, at a distance from the Pregolja riverbed not exceeding 600 metres, at an altitude of ten metres above the Pregolja river level. These landscape characteristics are typical of the burial sites from the Bronze Age and the Early Iron Age, a fact mentioned by E. Okulicz a long time ago (Okulicz 1973, 190, 230). The Rodniki I (Käpphen bei Preußisch Arnau) burial mound, situated in the lower reaches of the River Pregolja, is localised in the same manner. This burial ground includes Roman Period graves as well (Khomiakova 2013, 93ff.).

The burial mounds on the eastern border of Dollkeim-Kovrovo culture, including Drusker Forst-Espenheim, are situated in the proximity of the Instruch Ridge, in the southern part of the Neman/Nemunas/Memel delta lowland. Nevertheless, the sites are situated at altitudes of 13 to 20 metres, a fact most likely due to their correlation with sandy knolls and ridges, constituting the remains of the eroded morainic plain. The Drusker Forst-Espenheim burial ground's location is not yet pinpointed by field surveys. Based on R. Grenz's archival data reporting that the site is situated on a sandy knoll within the boundaries of the Polessk wood, and on remote sensing data (RSD), the site location can be associated with the watershed between the River Torfyanaja (a tributary of the River Pregolja) and the River Zalesinka (a tributary of the River Shventa/Schwentoji), flowing into the Curonian Lagoon. The distance between the beds of the upper reaches of these rivers and the site is about 2,300 to 2,600 metres. The location of two more Early Iron Age burial mounds, known to me from R. Grenz's archives, is associated with the valley side of the River Shventa/Schwentoji (the Golovkino channel) and its tributaries: Alt-Sternberg, situated about seven kilometres north of Drusker Forst-Espenheim and Pfeil, in the district of Labiau, situated eight kilometres south of the Shventa's influx into the Nemonin (Nemunynas).

The Mehlawischken burial ground, with the form of grave field with the ongoing burial tradition, and the latest graves dating from the sixth to seventh centuries, was in operation from the Early Roman Period in the

proximity of the River Shventa's tributary, the River Muchnaja (Libe)/Mehlawka. Its landscape characteristics are different. The distance between the bed of the River Muchnaja and the site is minimal, no more than 300 metres, and the elevation points over the riverbed are five metres (Jaskanis 1977, 302).

During the Early Roman Period, new sites emerge in the lower reaches of the River Dejma and near the rivulets flowing into the Curonian lagoon. Local burial grounds are associated with the tops and the slopes of hills, stemming from the outwash morainic debris. The Slavyanskoje/Lobertshoff, Sibirskoye/Moritten and Tyulenino/Viehof burial grounds are situated at a distance of 600 to 1,500 metres from the riverbeds, located in broad flat valleys (the River Mordovka and an anonymous brook), with elevation points not exceeding five metres over the nearest waterway. The sites spread up to the boundary of the morainic plain, the alluvial lowlands on the coast of the Curonian Lagoon, and in the vicinity of the widespread Neman lowlands were not developed. The landscape situation correlates with the evidence according to which some of these rivers before the Teutonic Order's conquest were branches of the River Dejma (Laba), into which it broke into near Polessk/Labiau (see Bahtin 2005, 119ff.).

It is worth mentioning the view which concerns Matrosovka-Gilija (Gilgestrom), a modern southern branch of the Neman, to be its main outfall in the first millennium AD, or to refer to the Neman's inflow with an ancient basin of glacial water runoff, situated in the area of the gap of the Instruch Ridge between the modern towns of Sovetsk/Tilsit and Neman/Ragnit (Žulkus 2006, 17ff.; Bliujienė 2013, 109-119, Figs. 44-45). It does not deny the availability of a coastal lane from the Dejma inflow through the Curonian Lagoon to west Lithuania in the Roman Period, as far as it was placed on record a later time. An analysis of the density of sites in the lower reaches of the River Dejma indicates a concentration of sites with a density of two to three sites per 30 kilometres. Sites associated with the rivers Shventa and Torfyanaya could also be related to waterway communications connected with the Curonian Lagoon and Gilija. It should be pointed out that the right bank of the River Neman, in its lowlands in modern Lithuanian territory, was also not inhabited at that time. The last sites are located within the wind-blown hillocks near Sovetsk/Tilsit (Bliujienė 2013, Figs. 44-45).

Finally, in the Early Roman Period the operation began of burial grounds (Fedorovo/Plauen, Druzhba/Muskau) located in the middle reaches of Lava, a left-bank tributary of the River Pregolja. The distance between the sites is about four kilometres. The burial grounds



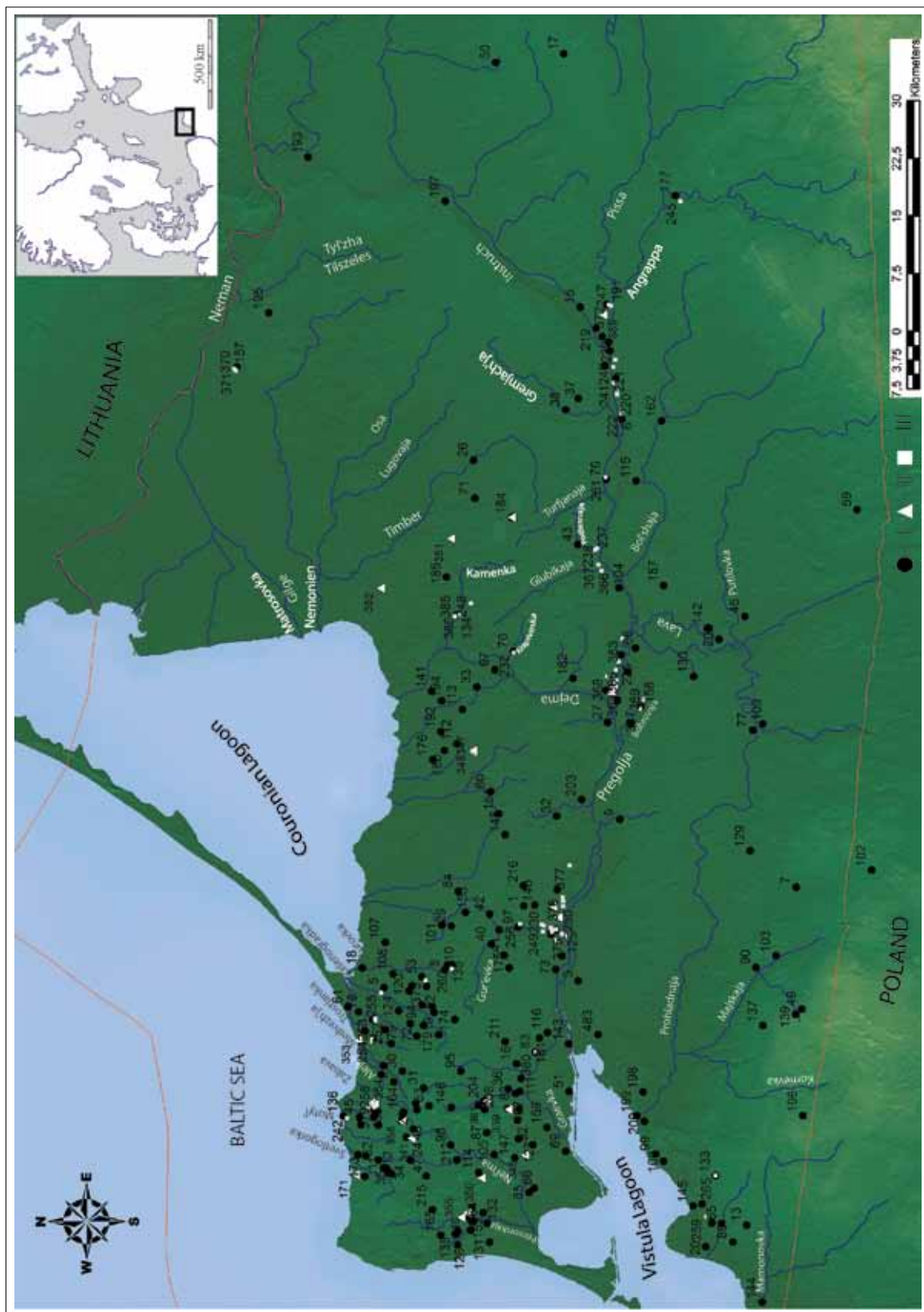


Fig. 1. Sites of Dollkeim-Kovrovo culture. I burial grounds, II burial mounds, III unfortified settlements (for a list of sites, see Appendix 1).



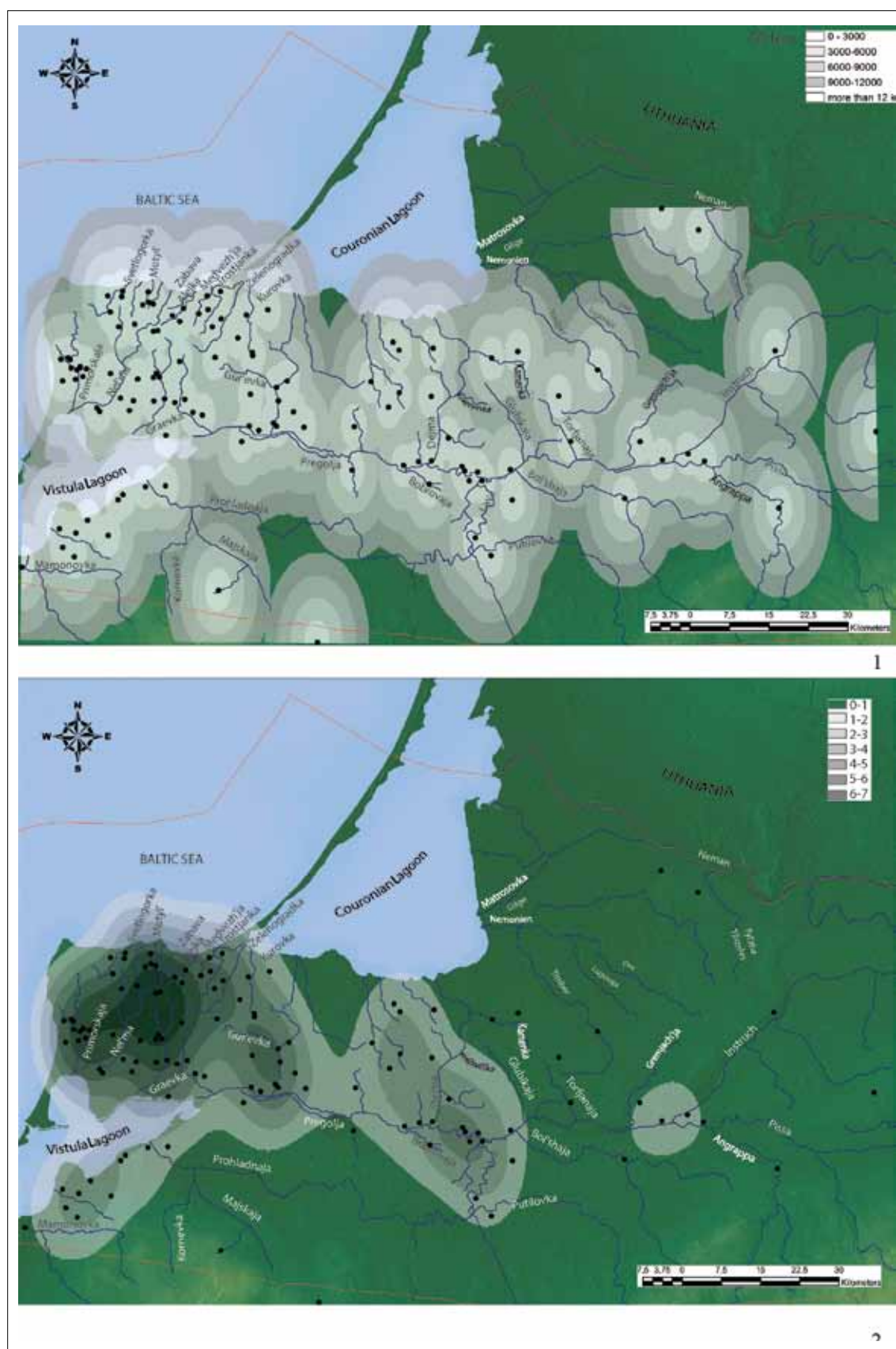


Fig. 2. Burial sites in phase I of Dollkeim-Kovrovo culture: 1 the immediate vicinity of the sites; 2 the density of the sites.

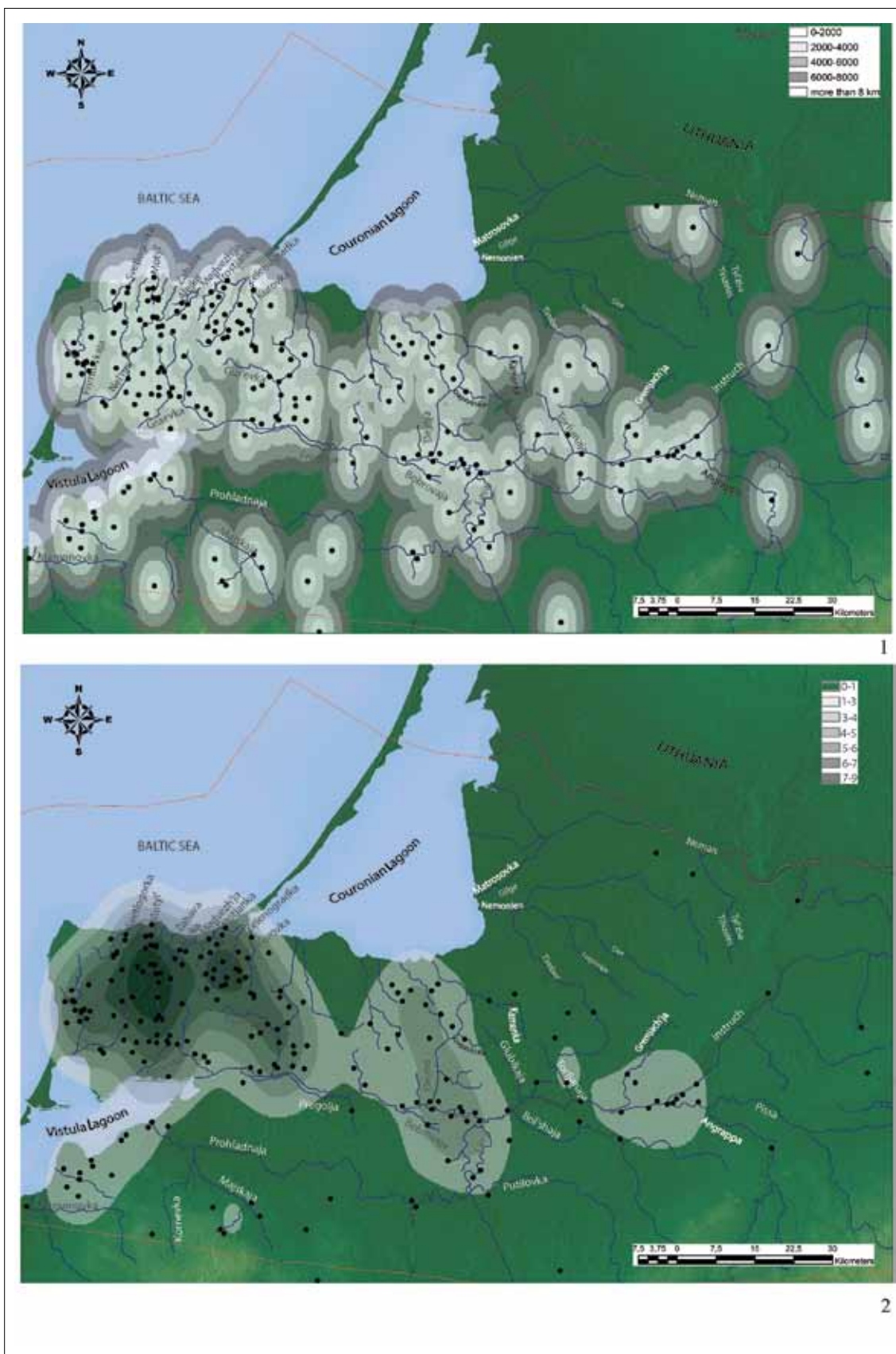


Fig 3. Burial sites in phases II–IV of Dollkeim-Kovrovo culture; 1 the immediate vicinity of the sites, 2 the density of the sites.



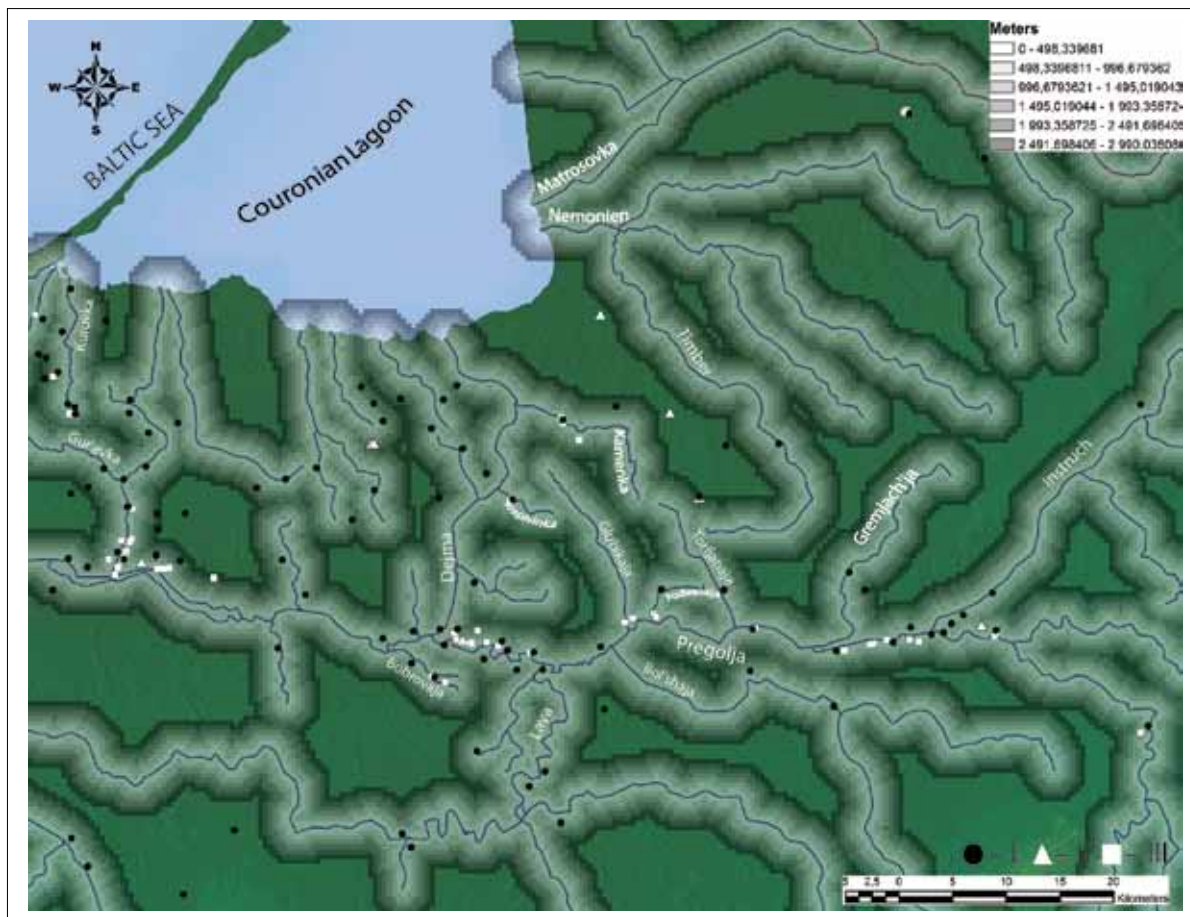


Fig. 4. The remoteness of the sites from the riversides: I burial grounds; II burial mounds; III unfortified settlements.

are situated on local heights: the Mertvaja/Toten upland and the slope of an unnumbered hill, at altitudes of nine to 16 metres above the Lava river level, at a distance of 600 to 900 metres from the Lava and Putilovka/Swine beds.

The modelling of archaeological data of phases II–IV of Dollkeim-Kovrovo culture takes into account the fact of the existence of burial grounds which had been in operation since the Early Roman Period and the instance of the appearance of new sites. Comparing the spatial distribution of burial grounds at the beginning of the third century with the archaeological situation of the second century testifies to the overall increase of the objects (Fig. 3.1). The application of the SDL method shows that the mean distance between burial grounds in the indicated period on the Samland Peninsula within the ‘culture core’ does not exceed three kilometres, and 1.7 to two kilometres inside the larger clusters (Fig. 3.2). The main concentrations of sites on the Samland Peninsula allocated to phase I continue to persist. The process of their outgrowth arises. The higher, than in the previous period, density of sites characterises the interfluvium of the rivers Medvezhja and Kurovka. More than ten new burial grounds began to operate here. Among them appeared Sirenevo/

Eisellbitten, Sirenevo-Serezhkino/Sergitten, Vershinino/Plutwitten, Vetrovo/Ekritten, Fedorovo/Maldaiten, Kudrinka/Backeln bei Mollenen, Muromskoje/Laptau, Bezymjanka/Nuskern, and others. The Kamenka and Zelenogradsk/Cranz burial grounds appeared along the River Trostjanka.

The expansion of objects within the cluster along the River Svetlogorka descends. They are the Bogatoje/Pokalstein A, B, Zaostrovje 1/Lauknicken, Romanovo 1, 2/Kosnicken, Kapick-Berg, Druzhba/Kirschappen, Kulikovo/Sorthenen and Pionerskij/Rantau-Neukuhren burial grounds. A concentration of sites in the middle reaches of the River Nelma was compiled. The Saalem/Rogehnen II, Grejbau/Greibau and Saalem-Rovnoje/Pollwitten burial grounds began to operate alongside the already-existing sites. The concentration of objects within this cluster generates five to seven sites per 30 kilometres (Fig. 3.2). The poorly drained lands of alluvial lowlands on the south coast of the Samland Peninsula, connected with the River Pregolja outfall, which existed before the ancient pre-litorina overlap of the Vistula Lagoon, were not inhabited.

The appearance of sites in the central watershed area of the Samland Peninsula is characteristic of this period. At the top of the Sambian morainic upland, near the



Fig. 5. The archaeological situation in the middle reaches of the River Pregolja: 1 the edge of the river valley.

Alkgebirges Ridge and the Galtgarben Peak, in the period of the third and fourth centuries, appeared the Schorsovo/Lengniethen, Shatrovskoje shosse/Cojehnen, Kumachevo-Pereslavskoje Zapadnoje/Siegesdieken, Prostornoje/Seefeld and Zelenyj Gaj/Gross Drebnau burial grounds. The emergence of new sites within the watershed territories and the headwaters is also representative of the Great Migration Period (Chkalovsk/Gallhofen, Logvino/Klein Medenau, Zhuravlevka/Pokirben).

An increase in the number of sites in the Late Roman Period is observed inside the concentrations along the coast of the Vistula Lagoon, in the middle and lower reaches of the River Guryevka, and the lower reaches of the Pregolja. Overall concentrations of burial grounds mark the river crossings: near Oktjabrsky/Liep on the River Pregolja, the outfall of the River Prohladnaja, and the Balga peninsula. A number of burial grounds that do not form any clusters appear at the bottom of the Warmian Upland, at the headwaters, by the tributaries of the River Prohladnaja, and near the minor rivers Kornevka and Mayskaya at the boundary of Wielbark culture: Uzornoje/Jacknitz, Elanovka/Wackern, Poberezhje/Hoh Schnakeiken, Krasnoznamenskoje/Ernstshof, Lermontovo/Wogau, Berezovka/Gross Sausgarten and Osokino/Gross Waldeck.

Burial grounds in eastern and central parts of the Kaliningrad region in the Late Roman Period form certain clusters, which gravitate towards the rivers Pregolja and Dejma. However, an analysis of the density of objects dated to the third or fourth centuries demonstrates the same characteristics (three to four sites per 30 kilometres) as for the group of burial grounds along the coast of the Vistula Lagoon (Fig. 3). At a distance of more than three kilometres from the Pregolja riverbed, the density of sites is minor, about one site per 30 kilometres. The remoteness of the sites that appeared in the Late Roman Period from the Pregolja riverside decreases, and becomes no more than 600 metres (Fig. 4). The sites exhibit the same landscape characteristics as in the previous period: they coincide with the gradual slopes of the valley sides and the brows of the local moraines formed by the sand and gravel sediments. The elevation points average out at three to ten metres over the nearest waterway.

Burial grounds form concentrations in the key micro-regions of the Pregolja valley. The first are located in the middle reaches of the Pregolja, near the present-day town of Gvardejsk/Tapiau. The Soldatovo/Friedrichsthal, Gvardejsk-Zavodskaja/Kleihof-Tapiau, Rechnoje/Magotten and Suvorovo/Zophen sites arise here alongside already-existing ones (Fig. 5). The River



Fig. 6. The landscape location of sites: 1 Rovnoje/Imten; 2 Petino/Perdollen burial ground and Petino-2 settlement; 3 Izoblnoje/Klein Flies (photograph by O. Khomiakova).

Dejma, which at the present time is an arm of the River Pregolja, should have been an independent river (the Laba) in Antiquity. The headstreams of the Laba should have been situated to the west of the Peschanyj/Sanditter forest and draw towards the north (Schenk 1975, 209ff., 214). The area of the present division of the River Pregolja into two arms used to represent a swampland, flooded by high water. Burial grounds of the Roman Period are situated here on the south bank of the Pregolja, at the 'sandbar', the largest outcrop of sand and gravel sediments.

The south bank of the River Pregolja between the present-day towns of Znamensk/Wehlau and Mezhdurechje/Piaten is defined by the vast territories of the 'low' floodplain, swale and multiple dead arms of the river. Sites from the Roman Period are unknown here. In ancient times, a woodland was situated close to the river (Grunert 1975, 56ff.). The valley of the

Pregolja at this point is characterised by stand-alone burial grounds, situated on the north bank of the river near minor inflows at a distance of three to six kilometres from each other (Livny/Stobingen, Kamenskoje/Siemohnen, Jakovlevo-Divnoje/Ilschken). In the meantime, the significance of their communities was no less. The location of the Jakovlevo-Divnoje/Ilschken burial ground, which is situated at more than 3,000 metres from the Pregolja riverbed, is associated with the brow of a moraine rise, at a distance of no more than 300 metres from the Podlesnaja/Raguppe (a minor inflow of the Pregolja) (Fig. 5).

The second concentration is arranged in the lower reaches of the most important tributaries of the Pregolja: near the River Golubaja/Auksinè (the Mezhdurechje/Norkitten and Rodnikovo/Friedensfelde burial grounds) and by the Gremjachja/Dreje river inflow (the Gremjachje/Gross Berschkallen i

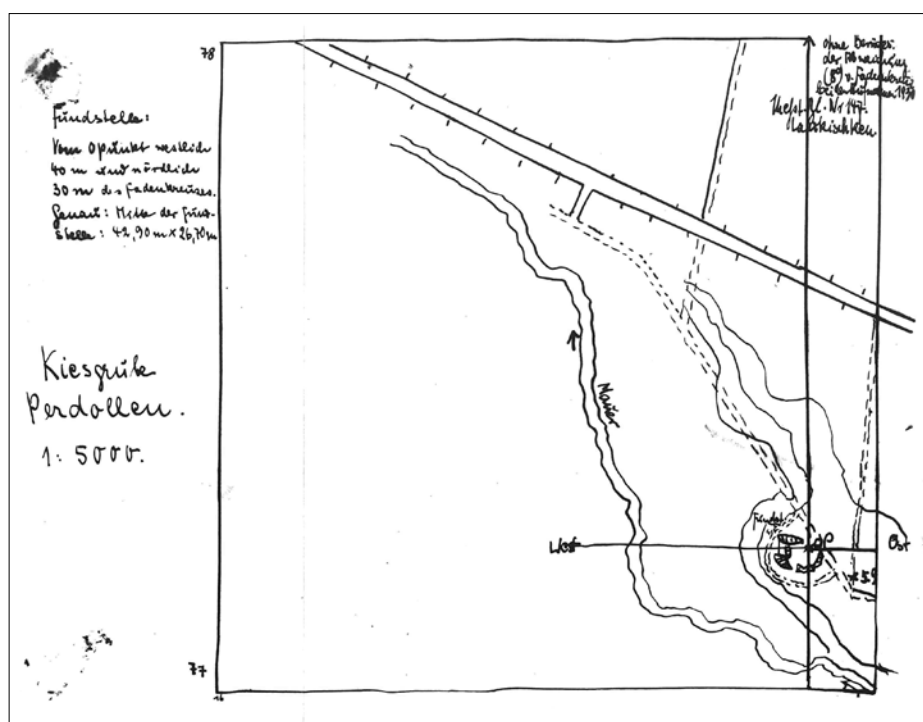


Fig. 7. The archival location plan of the Petino/Perdollen burial ground (after SMB-PK/MVF, PM-A 1186/1: 215).

Berezhkovskoje/Gross Bubainen burial grounds). The third is in the vicinity of the confluence of the rivers Instruch and Angrapa, where the Althof/Althof, Chernjahovsk 1, 2, 3/Insterburg-Wasserwerk, Insterburg, Insterburg-Sprindt and Botanicheskoe/Wengerin burial grounds are located. The latter two concentrations form a single cluster (Fig. 3).

An evaluation of the archaeological situation in the northern area of the Polesk morainic plain allows us to identify the cluster of a burial ground with a density three to four sites per 30 kilometres, located on the left bank of the River Dejma. Here, in the lower reaches of the Deyma, burial grounds such as Majskoje/Possritten, Turgenevo/Legitten and Polesk/Labiau begin to operate (Fig. 3.2).

The frequency of sites is observed in the middle reaches of the River Dejma, around its inflows (Krapivinka/Fliess-Gr., Kamenka/Mauer) at the beginning of the Late Roman Period, where the Ivanovka/Groß Bärwalde, Goldhauzen/Goldzhausen, Izobilnoje/Klen Fliess and Petino/Perdollen burial grounds emerged. The location of the Ivanovka/Groß Bärwalde and Goldhauzen/Goldzhausen burial grounds is ascertained by comparing the archival data and RSD, and can be associated with local moraine peaks located at a distance of one to three kilometres from the Dejma riverbed.

Izobilnoje/Klen Fliess and Petino/Perdollen burial grounds were identified by prospecting (Khomiakova 2014a, 46-58). The sites are distinguished with the same arrangement of isolated moraine mounds or eolic

sand-hills, located on the banks of the River Dejma's tributaries, more than 100 metres from streamways, with elevation points two to four metres over the waterway (Figs. 6.2-3, 7-8). The burial grounds are defined by burial customs dating back to the practice of burial mounds (Gaerte 1929, 162ff.). K. Engel set Izobilnoje/Klen Fliess and Petino/Perdollen burial grounds beside 'small-type' barrows, and used the term 'barrow' within the context of the ethnocultural characteristics of the archaeological culture of the West Balt cultural circle. The tradition of making barrow hills, known from the Bronze Age and the Early Iron Age till the Roman Period, was considered one of the main customs of the West Balt area (Engel 1933, 262-286) (Fig. 9).

The significance of the Dejma in the local transport system is understated. In the Late Roman Period, the value of archaeological sites in the middle reaches of the River Lava increases. Apart from the already-existing Fedorovo/Plauen and Druzhba/Muskauf burial grounds, Pavenkovo/Luxhausen and Potapovo/Potawern appeared. The location of the Lukino/Detlevsruh and Kiselevka/Karschau burial grounds, known by RSD, is probably associated with the same micro-region. Like the burial grounds situated in the upper reaches of the River Prohladnaja and along its inflows, these sites do not form any clusters, but gravitate towards the River Lava and its tributaries. Their placement did not exceed more than 600 to 900 metres from the riverbed, and the elevation points were nine to 16 metres above the waterway.



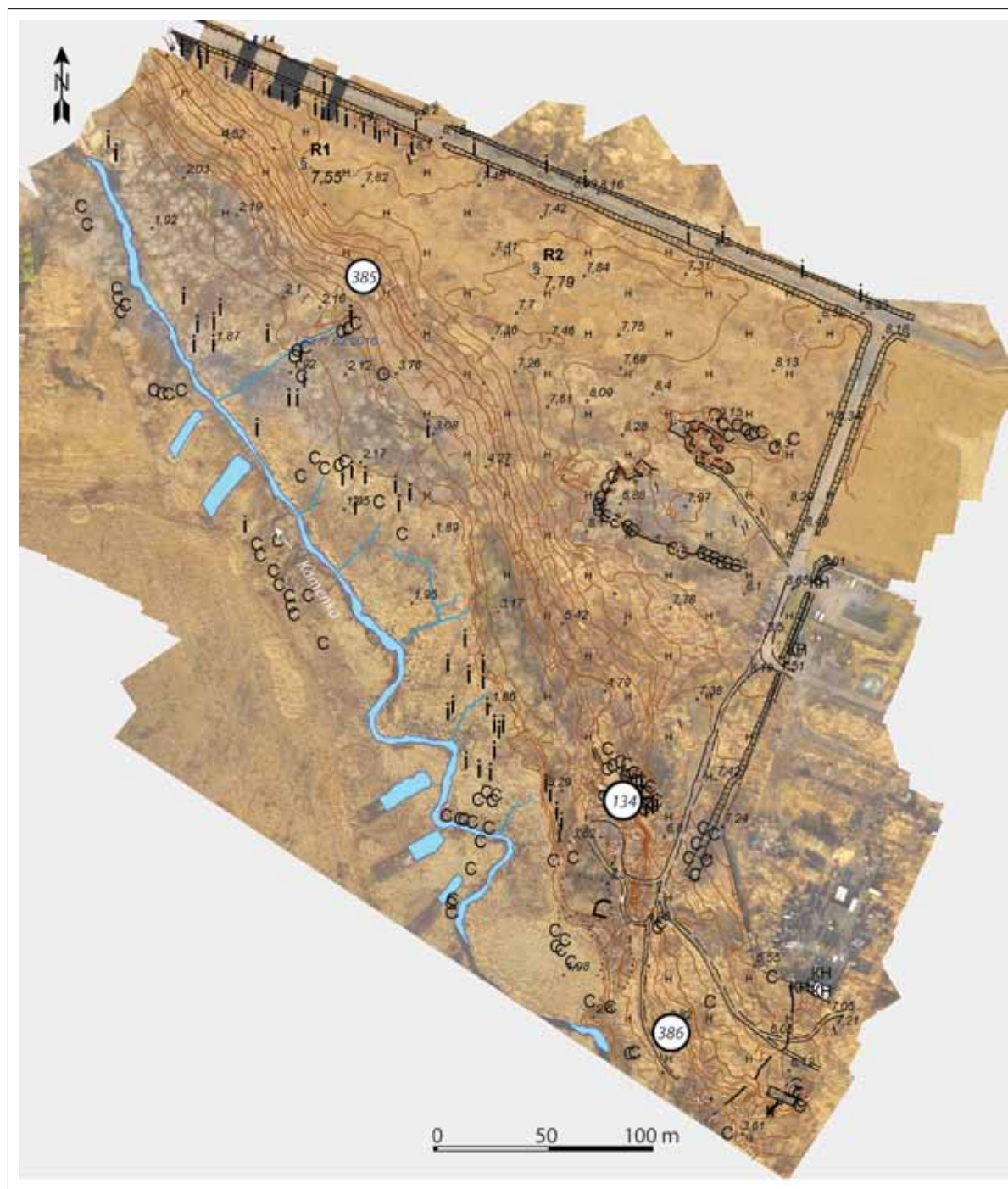


Fig. 8. The landscape situation in the micro-region of Petino/Perdollen: 134 burial ground; 385–386 unfortified settlements. Topo, combined with quadcopter ortofotomap (by I.N. Skhodnov, January 2016).

## Settlements

The question of the spatial disparity of Dollkeim-Kovrovo settlements seems to be the most complex. Unfortified settlements dated to the Roman Period are investigated less than burial grounds. According to statistics of listed sites proposed in the 2000s, the number of unfortified settlements comes to 39% (Puzakova, 2008, Table. 1). Tentative analytical treatment suggests that settlements can be divided into

two groups, like the burial grounds. One of them was located on the Samland Peninsula within the ‘culture core’ of Dollkeim-Kovrovo culture. The second group was situated in the eastern area of Dollkeim-Kovrovo culture, in the middle and upper reaches of the River Pregolja, and along the Dejma (Fig. 10). A simulation of the archaeological situation in the key micro-regions enables us to set out the disposition of the spatial placement of the settlements. The density of settlements was high. In the context of the situation in the micro-region

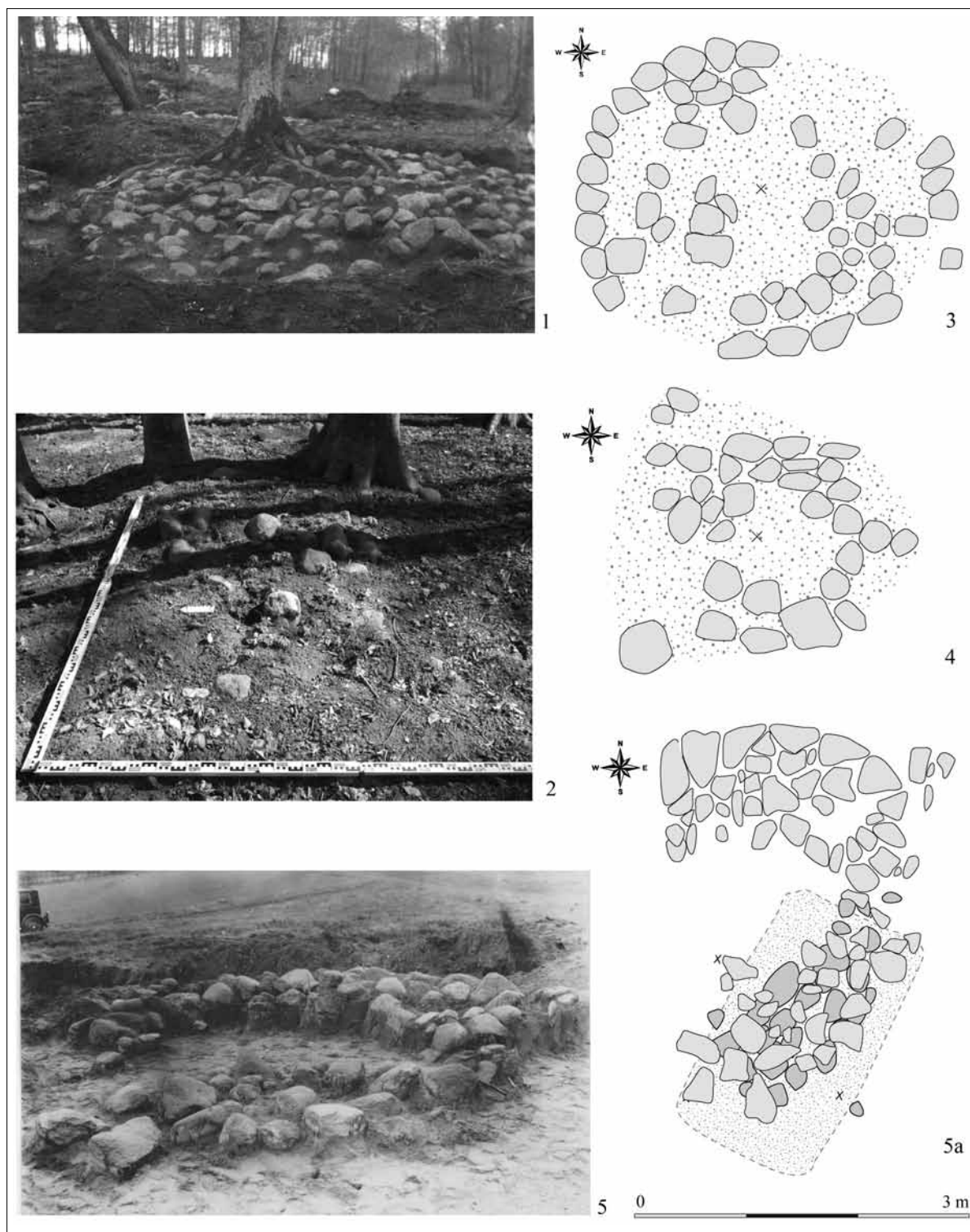


Fig. 9. Stone structures (barrows) of the Izobjlnoje/Klein Flies burial ground (1–4), and grave 7 of the Petino/Perdollen burial site (5–5a). (1, 3–5 after H. Jankuhn archive; 2 photograph by O. Khomiakova in 2015, 5a after SMB–PK/MVF, PM-A 1186/1: 182).

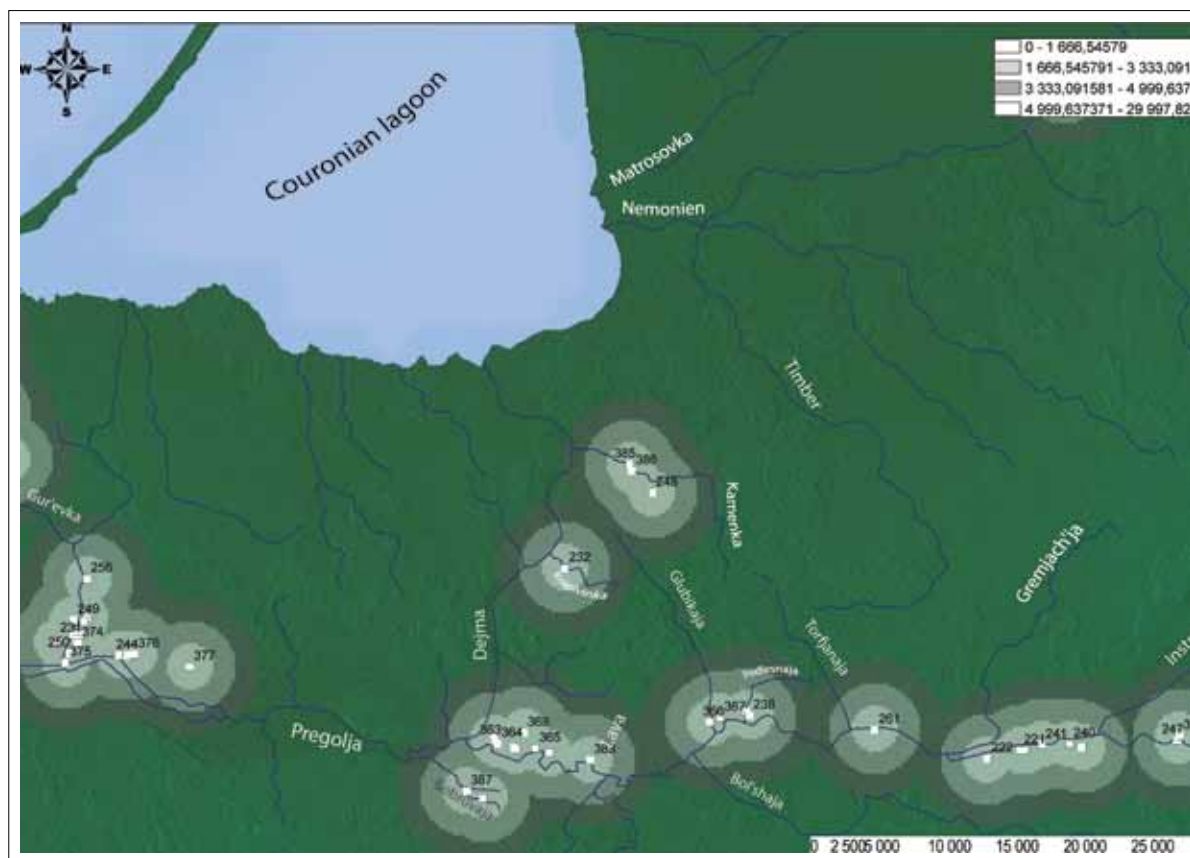


Fig. 10. The density of unfortified settlements of Dollkeim-Kovrovo culture (for a list of sites, see Appendix 1).

of Chistyj/Lauther Mühlen in the lower reaches of the River Pregolja, one can see that the density of objects amounts to seven to nine per 30 kilometres, and the distance between settlements does not exceed 1.5 kilometres (Fig. 10).

An overview of the disposal data on unfortified settlements known in the middle reaches of the Pregolja testifies to the fact that the location of sites dating from the first millennium AD is 300 to 600 metres from streamways (Rovnoje 1, Kudrjavcevo 2–3, Sirenevka/Siemohnen, Berezhkovskoje 1–3, Timofeevka 1–2). Unfortified settlements are associated with the attached flat-topped steps of the valley sides of the Pregolja, passed to the bottom. The sites settle on the slopes of the local uplands. The area of the settlements on one hand was bounded by the tops of the local uplands, and on the other by the swales. Within the cluster of the sites near the present-day town of Gvardejsk/Tapiau, the density of the settlements is seven to nine per 30 kilometres (Istrovka 3, 4, Vyborskoje, Rovnoje 1); in the upper reaches of the River Pregolja near Chernjahovsk/Insterburg, five to seven per 30 kilometres (Kudrjavcevo 2, 3, Sirenevka, Berezhkovskoje 1–3, Timofeevka 1–2) (Fig. 10).

The same diatopical characteristics connected with the first and second stretches of the river apply to settlements near the River Dejma and its inflows: the sites located next to the Izobilnoje/Klen Fliess and Petino/Perdollen burial grounds and Fevralskoje. The distance from the settlements to the burial grounds does not exceed 500 metres (Izobilnoje/Klen Fliess, Petino/Perdollen, Rovnoje/Imten, Kamenskoje/Siemohnen, Berezhkovskoje/Gross Bubainen, Timofeevka/Tam-mowischken) (Fig. 6.2, 8).

## Conclusions

A spatial analysis of the archaeological data provides an opportunity to consider Dollkeim-Kovrovo culture to be a solid community of sites which expanded from the ‘culture core’ to the ‘periphery’. The development of individual areas was related to natural and landscape peculiarities. An analysis of the spacing of sites shows a high density of objects, and reflects the very high density of the population on the Samland Peninsula in the Roman Period. The generation of the ‘culture core’ is associated with the forming of clusters in the coastal area of the Samland Peninsula at the end of the first and the beginning of the second centuries: near the present-day urban-type settlement of Yantarny, and in the inter-

fluve area of the rivers Motyl and Zabava, Medvezhja and Kurovka. In the third and fourth centuries, a process of the outgrowth of clusters into the heart of the Samland Peninsula went on, up to the watershed area of the Sambian morainic upland. The settlement of the area to the south of the River Pregolja embouchement, along the shore of the Vistula Lagoon, in the catchments of the rivers Prohladnaja and Mayskaja, began in the Early Roman Period. This process was probably associated with the evolution of local transport systems connected with activity on the 'Amber Road' leading to the Vistula Delta.

The sites in the eastern part of the Dollkeim-Kovrovo area were confined to the Pregolja river valley and the River Dejma. The burial grounds which appeared in the Early Roman Period had different landscape characteristics to Bronze Age and Early Iron Age burial mounds. Nevertheless, 'old' burial sites were also used. Burial grounds emerged in the Roman Period, were assigned to the sloping part of the valley, and local moraine tops, composed of sand and gravel sediments formed by fluvio-glacial action. The sites have elevation points not exceeding ten metres above the nearest waterway. The unfortified settlements are located no more than 500 metres from burial grounds, and are associated with the attached flat-topped steps of the valley sides. The swampy bottom lands, riversides and coastal areas were not developed.

The landscape characteristics of the burial grounds and unfortified settlements in the eastern and central parts of the Kaliningrad region support the attribution of the sites located in the Pregolja river valley to Dollkeim-Kovrovo culture: on both riversides in the lowest and middle reaches of the river; on the north bank of the Pregolja between the present-day town of Znamensk/Wehlau and the confluence of the Angrapa and Instruch. Sites are situated on the morainic Instruch Ridge, in the northern area of the Polessk morainic plain, in the lower reaches of the River Dejma. Half of the sites of the Inster-Pregel culture group form a concentration in the upper reaches of the Pregolya, and possibly belong to Dollkeim-Kovrovo culture.

Burial grounds located at the bottom of the Vishtynets (in Lithuanian *Vištyčio–Gražiskių*) Highlands, in the valleys of the Angrapa and Instruch, had different landscape characteristics. They were situated at a nominal distance from the riverbed, with elevation points more than ten metres above the streamflow. The operation of these particular burial grounds, in our opinion, should be connected with the inter-cultural area of the West Balt cultural circle. Sites located at the bottom of the Warmian upland, in the border area of Wielbark culture, had the same landscape features. The number of

sites in this area increased in the Late Roman Period, but they did not form any clusters. According to a spatial analysis, this area is characterised by a minimal density, zero to one site per 30 kilometres.

The position of the River Pregolja as one of the main traffic arteries in the southeast Baltic cannot be overstated. The eastern part of the Dollkeim-Kovrovo area was highly significant as far back as the Early Roman Period. In the third and fourth centuries, the number of burial grounds, and then the population in this area increased, which was related to the rise in the value of the River Pregolja and its tributaries in the trans-regional communications of Dollkeim-Kovrovo culture with the Masurian Lakeland and the Suwałki region. There is no denying that the River Dejma played an important role in the system of contacts with the west Lithuanian coastland. A concentration of archaeological sites burgeoned all around the lower reaches of the Dejma. Obviously, up to the Late Roman Period, the importance of the eastern area and the border zone of Dollkeim-Kovrovo culture had a value relating to the region along the shore of the Vistula Lagoon.

## Acknowledgements

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## Abbreviations

Prussia – Sitzungsberichte der Altertumsgesellschaft Prussia. Königsberg i.Pr.

ZAJ – Zeitschrift der Altertumsgesellschaft Insterburg. Insterburg: Altertumsgesellschaft (1888–1939).

## Museums and archives

IA RAS – Institute of Archaeology of the Russian Academy of Sciences.

PM – Prussia-Museum.

SMB-PK/MVF – Staatliche Museen zu Berlin – Preußischer Kulturbesitz, Museum für Vor- und Frühgeschichte, Berlin.



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## Appendix 1. List of archaeological sites (the sites located using GIS)

**Burial mounds** (see Figs. 1, 4, 5): 157 Rodniki-1 (Käpphen bei Preußisch Arnau, Kr. Königsberg); 171 Svetlogorsk (Georgienschwalde, Kr. Fischhausen); 184 Sosnovka (Drusker Forst-Espenheimer, Kr. Wehlau); 338 Blankenberg (Blanken-B bei Lauknicken, Kr. Fischhausen); 339 Botanicheskoe (Angerlinde, Kr. Insterburg); 341 Dubrovka (Regehen, Kr. Fischhausen); 343 Istrovka I (Milchbude, Kr. Wehlau); 344 Istrovka II (Milchbude, Kr. Wehlau); 345 Kremnevo (Klein Blumenau, Kr. Fischhausen); 346 Kruglovo (Polennen, Kr. Fischhausen); 347 Lipovka (1) (Meyken, Kr. Labiau); 348 Lipovka (2) (Meyken, Kr. Labiau); 350 Medvedevo (Klein-Norgau, Kr. Fischhausen); 351 Polesskij les

(Alt-Sternberg, Kr. Labiau); 352 Polesskij les (Pfeil, Kr. Labiau); 353 Priboj (Kriwischkuhle, Kr. Fischhausen); 354 Prudnaja, Gora/Kalkberg (Lauknicken, Kr. Fischhausen); 355 Putilovo (Gauten, Kr. Fischhausen); 356 Rodniki (Mörderberg, Preußisch Arnau, Kr. Königsberg); 358 Romanovo (Watzum, Kr. Fischhausen); 359 Saalem (Rogehnen I, Kr. Fischhausen); 361 Hrustal'noje (Wiekau bei Drugehen, Kr. Fischhausen).

**Burial grounds** (see Figs. 1-5, 7, 8): 1 Avangardnoje (Dossiten, Kr. Königsberg); 2 Alejka 3; 3 Alleja Smelyh/Kaliningrad (Rosenau, Königsberg i. Pr.); 5 Bezymjanka (Nuskern, Kr. Fischhausen); 6 Berezhkovskoje (Gross Bubainen, Kr. Insterburg); 7 Berezovka (Gross Sausgarten, Kr. Preußisch Eylau); 8 Berezovka (Schugsten, Kr. Fischhausen); 9 Berezovka (Gross Ottenhagen, Kr. Wehlau); 10 Berezovka (Schugsten, Kr. Fischhausen); 11 Bogatoje "A" (Pokalkstein A, Kr. Fischhausen); 12 Bogatoje "B" (Pokalkstein B, Kr. Fischhausen); 13 Bogdanovka (Gnadenthal, Kr. Heiligenbeil); 14 Bol'shoje Isakovo (Lauth, Kr. Königsberg); 15 Botanicheskoe (Wengerin, Kr. Insterburg); 16 Bugrovo (Wargen/Warglitten, Kr. Fischhausen); 17 Vatutino (Tutschen, Kr. Stallupönen); 18 Verbnoje (Darien, Kr. Fischhausen); 19 Vershinino (Plutwinnen, Kr. Fischhausen); 20 Veseloje (Balga, Kr. Heiligenbeil); 21 Vetkino (Stapornen, Kr. Fischhausen); 22 Vetrovo (Ekritten, Kr. Fischhausen); 24 Vodnoje/Bogatovka (Syndau, Kr. Fischhausen); 26 Vysokoje (Mehlawischken, Kr. Labiau); 27 Gvardejsk (Koddien, Kr. Wehlau); 28 Gvardejsk/Zavodskaja ul. (Kleinhof-Tapiau); 29 Georgievskoje (Konradshorst, Kr. Fischhausen); 30 Gerojskoje 5 (Eislithen, Kr. Fischhausen); 31 Gerojskoje/Zelenyj Gaj (Goythenen, Kr. Fischhausen); 32 Golovenskoje (Willkuhn, Kr. Königsberg); 33 Goldshauzen (Goldzhausen, Kr. Labiau); 34 Grachevka "A–B" (Craam A–B, Kr. Fischhausen); 35 Grachevka "C" (Craam C, Kr. Fischhausen); 36 Grejbau, urochishhe (Greibau, Kr. Fischhausen); 37 Gremjachje (Birken, Kr. Insterburg); 38 Gremjach'e (Gross Berschkallen, Kr. Insterburg); 39 Gurjevsk (Neuhausen, Kr. Königsberg); 40 Gurjevsk 1 (Klein Heide, Kr. Königsberg); 41 Gurjevsk gor., okraina (Absintkeim, Kr. Königsberg); 42 Gurjevsk Novyj (Trausitten/Bertaswalde, Kr. Königsberg); 43 Jakovlevo (Ilischken, Kr. Wehlau); 44 Dobroje (Battau, Kr. Fischhausen); 45 Dobroje/Beregovoje/Letnoje, "Gora Velikanov" (Tenkieten, Kr. Fischhausen); 46 Druzhba (Muskau, Kr. Wehlau); 47 Druzhba (Kirschappen, Kr. Fischhausen); 48 Dubrovka (Regehen, Kr. Fischhausen); 49 Elanovka, urochishhe (Wackern, Kr. Preußisch Eylau); 50 Zhelannoje (Henskischken, Kr. Pillkallen); 51 Zhukovskoje (Margen, Kr. Fischhausen); 53 Zajcevo (Trentitten, Kr. Fischhausen); 54 – Zaozerje (Lapsau, Kr. Königsberg); 56 Zaostrov'e 2 (Schlakalken, Kr. Fischhausen); 57 Zaostrovje-1 (Lauknicken, Kr. Fischhausen); 58 Zaostrovje/Jaroslavskoje (Schlakalken, Kr. Fischhausen); 59 Zarechenskoje (Gross Sobrost, Kr. Gerdauen); 60 Zarechje (Kaymen, Kr. Labiau); 61 Zelenogradsk (Cranz, Kr. Fischhausen); 62 Zelenodolje (Neu Luböhen, Kr. Ragnit); 63 Zelenyj Gaj (Gross Drebnau, Kr. Fischhausen); 64 Zemljanichnoje (Bohnau, Kr. Fischhausen); 65 Znamenka Novaja (Stuthenen, Kr. Heiligenbeil); 66 Znamensk, okraina (Augken, Kr. Wehlau); 67 Ivanovka (Groß Bärwalde, Kr. Labiau); 70 Izobilnoje (Klein Fließ, Kr. Labiau); 71 Iskrovo (Pannaugen, Kr. Labiau); 72 Iskrovo (Ringels, Kr. Fischhausen); 73 Kaliningrad/ul. Jaltinskaja (Kupferberg, Kr. Königsberg i. Pr.); 74 Kamenka; 75 Kamenka/Sokolniki-2 (Michelau, Kr. Fischhausen); 76 Kamenskoje/Sirenevka (Siemohnen, Kr. Insterburg); 77 Kiselevka (Karschau, Kr. Friedland); 78 Klinevka (Wargenau/Kunterstrauch, Kr. Fischhausen); 79 Kovrovo (Dollkeim, Kr. Fischhausen); 80 Kov-

rovo/Kadicks-B (Nautzau bei Grünhof, Kr. Fischhausen); 82 Kornitten, urochishhe (Cornieten/Korniten, Kr. Fischhausen); 83 Kosmodemjanskogo A. (Metgethen, Kr. Königsberg i. Pr.); 84 Kosmodemjanskoje (Molsehn, Kr. Königsberg); 85 Kostrovo (Bludau, Kr. Fischhausen); 86 Kostrovo (Bludau, Kr. Fischhausen); 87 Kotelnikovo (Warengen, Kr. Fischhausen); 88 Krasnaja Gorka (Nettinen, Kr. Insterburg); 89 Krasnodonskoje (Keimkallen, Kr. Heiligenbeil); 90 Krasnoznameniskoje (Ernsthof, Kr. Heiligenbeil); 91 Krasnoflotskoje (Corben bei Mollehn, Kr. Fischhausen); 92 Kremnevo (Klein Blumenau, Kr. Fischhausen); 93 Kruglovo (Polennen, Kr. Fischhausen); 94 Kudrinka (Backeln bei Mollehn, Kr. Fischhausen); 95 Kulikovo (Elchdorf b. Druehnen, Kr. Fischhausen); 97 Kumachevo (Tropitten, Kr. Königsberg); 98 Kumachevo/Pereslavskeje-zapadnoje (Siegesdieken, Kr. Fischhausen); 99 Ladushkin-Beregovoje (Domnieksruh, Kr. Heiligenbeil); 100 Ladushkin/Beregovoje 2 (Patersort/Patersdorf, Kr. Heiligenbeil); 101 Lazovskoje (Trömpau, Kr. Königsberg); 102 Lejdy/Lejdy (Legden, Kr. Preußisch Eylau); 103 Lermontovo (Wogau, Kr. Heiligenbeil); 104 Livny (Stobingen, Kr. Wehlau); 105 Logvino (Klein Medenau, Kr. Fischhausen); 107 Lugovskoje (Lobitten, Kr. Königsberg); 108 Luzhki (Kiauten, Kr. Fischhausen); 109 Lukino (Detlevsruh, Kr. Bartenstein); 110 Lunino (Sanditten, Kr. Wehlau); 111 Ljublino (Seerappen, Kr. Fischhausen); 112 Majskoje (Poßritten, Kr. Labiau); 113 Malaja Lipovka (Schakaulack, Kr. Labiau); 114 Medvedevo (Klein-Norgau, Kr. Fischhausen); 115 Mezhdurechje (Norkitten, Kr. Insterburg); 116 Mendeleevo (Juditten, Kr. Königsberg i. Pr.); 117 Morozovka (Sacherau, Kr. Fischhausen); 118 Morshanskoje (Schreitlacken, Kr. Fischhausen); 119 Moskovskoje 1 (Partheinen, Kr. Heiligenbeil); 120 Muromskoje (Laptau, Kr. Fischhausen); 121 Nesterov (Stallupönen, Kr. Ebenrode); 122 Novaja Derevnja (Gaitzuhn, Kr. Insterburg); 123 Obuhovo (Lixiden, Kr. Fischhausen); 124 Ozerovo (Transau, Kr. Fischhausen); 125 Oktjabrskij (Liep, Königsberg); 126 Okunevo (Grebieten, Kr. Fischhausen); 127 Orechovo/Cherepanovo (Schuditten, Kr. Fischhausen); 129 Osokino (Gross Waldeck, Kr. Preußisch Eylau); 130 Pavenkovo (Luxhausen, Kr. Wehlau); 131 Parusnoje (Gaffken, Kr. Fischhausen); 132 Parusnoje (Nöpkeim, Kr. Fischhausen); 133 Pervomajskoje (Warnikam, Kr. Heiligenbeil); 134 Petino (Perdollen, Kr. Labiau); 135 Peshkovo (Steinerkrug, Kr. Fischhausen); 136 Pionerskij (Rantau-Neukuhren, Kr. Fischhausen); 137 Poberezh'e (Hoch Schnakeinen, Kr. Preußisch Eylau); 138 Povarovka (Kirpehn, Kr. Fischhausen); 139 Pogranichnoje (Alkehn, Kr. Preußisch Eylau); 140 Poddubnoje (Neidtkeim-Fürstenwalde, Kr. Königsberg); 141 Polessk (Labiau, Kr. Labiau); 142 Potapovo, urochishhe (Potawern, Kr. Wehlau); 144 Prigorkino (Carben, Kr. Heiligenbeil); 145 Primorskoje-Novoje (Wolittnik, Kr. Heiligenbeil); 146 Prostornoje (Seefeld, Kr. Fischhausen); 147 Prohladnoje (Kragau, Kr. Fischhausen); 148 Prudki/Prudy (Kadgiehn, Kr. Labiau); 149 Putilovo (Corjieten, Kr. Fischhausen); 150 Putilovo (Gauten b. Godnicken/ Kr. Fischhausen); 151 Putilovo (2) (Gauten, Kr. Fischhausen); 153 Putilovo 2 (Gauten, Kr. Fischhausen); 155 Rassvet/Nekrasovo (Knöppelsdorf, Kr. Königsberg); 156 Rechnoje (Magotten, Kr. Wehlau); 157 Rodniki-1 (Käpphen bei Preußisch Arnau, Kr. Königsberg); 157 Rzhevskoje (Linkuhnen, Kr. Tilsit); 158 Rovnoje (Imten, Kr. Wehlau); 159 Rovnoje (Pollwitten bei Powayen, Kr. Fischhausen); 160 Rodniki-1 (Käpphen bei Preußisch Arnau, Kr. Königsberg); 162 Rodnikovo (Friedensfelde, Kr. Insterburg); 163 Romanovo 1 (Kösnick, Kr. Fischhausen); 164 Romanovo 2 (Kösnick/Kapick-Berg); 165 Russkoje (Germau, Kr. Fischhausen); 167 Saalem 1 (Rogeh-

nen II, Kr. Fischhausen); 168 Saalem 2 (Rogehnen III, Kr. Fischhausen); 169 Saalem/Rovnoje (Pollwitten, Kr. Fischhausen); 170 Svetlogorsk (Kobjeten-Rauschen, Kr. Fischhausen); 172 Svetlogorsk (2) (Kirtigehnen-Rauschen, Kr. Fischhausen); 173 Svetlogorsk-Majskij (1) (Raushen-Cobjeten Abbau bei St. Lorenz, Kr. Fischhausen); 174 – Svobodnoje (Perkuiken, Kr. Fischhausen); 175 Severnaja Gora (Quednau, Königsberg i. Pr.); 176 Sibirskoje (Moritten, Kr. Labiau); 177 Sinjavino (Kampischkehmen, Kr. Gumbinnen); 178 Sirenevo (Eisselbitten, Kr. Fischhausen); 179 Sirenevo/Serezhkino (Sergitten, Kr. Fischhausen); 180 Slavjanskoje (Löbertshoff, Kr. Labiau); 181 Sovhoznoje (Gross Friedrichsberg, Kr. Königsberg); 182 Soldatovo (Friedrichsthal, Kr. Wehlau); 183 Solnechnoje (Praddau, Kr. Königsberg); 184 Sosnovka (Drusker Forst-Espenheim, Kr. Wehlau); 185 Sosnovka/Berezovka (Pogarben/Pogarbblauken, Kr. Labiau); 187 Suhodolje (Holländerei, Kr. Wehlau); 188 Syzranskaja ul./Kaliningrad (Lehndorf, Kr. Fischhausen); 189 Ternovka (Pertelnicken, Kr. Fischhausen); 190 Ternovka (Suppliethen, Kr. Fischhausen); 191 Timofeevka (Tammowischken, Kr. Insterburg); 192 Turgenevo (Legitten, Kr. Labiau); 193 Tushino (Lobellen, Kr. Tilsit); 194 – Tjuleno (Viehof, Kr. Labiau); 195 Barsukovka/Sovetsk (Bendiglauken) (Bendiglauken, Kr. Tilsit-Ragnit); 196 Uzornoje (Jäcknitz, Kr. Heiligenbeil); 197 Uljanovo (Kraupischken/Breitenstein, Kr. Tilsit-Ragnit); 198 Ushakovo (Tengen, Kr. Heiligenbeil); 199 Ushakovo 1 (Brandenburg, Kr. Heiligenbeil); 200 Ushakovo 2 (Brandenburg, Kr. Heiligenbeil); 201 Fedorovo (Maldaiten, Kr. Fischhausen); 202 Fedotovo (Plauen, Kr. Wehlau); 203 Holmy (Popelken/Bioten, Kr. Wehlau); 204 Hrustalnoje (Wiekau I, Kr. Fischhausen); 205 Hrustalnoje II (Wiekau II, Kr. Fischhausen); 206 Hrustalnoje III (Wiekau III, Kr. Fischhausen); 207 Chernjahovsk-1 (Insterburg-Wasserwerk, Kr. Insterburg); 208 Chernjahovsk-2 (Insterburg, Kr. Insterburg); 209 Chernjahovsk/ul. Dachnaja (Althof, Kr. Insterburg); 210 Chehovo (Godnicken, Kr. Fischhausen); 212 Shatrovskoje shosse (Cöjehnen/Köjehnen); 213 Shlakalken-5; 215 Shhorsovo (Lengniethen, Kr. Fischhausen); 216 Jastrebki (Mantau, Kr. Königsberg); 219 Chernjahovsk (Insterburg-Sprindt, Kr. Insterburg); 381 Kulikovo 1 (Sorthenen (1,3), Kr. Fischhausen); 446 Heide/Adamsheide, Kr. Wehlau; 470 Shumnoje 2; 489 Primorskoje-Novoje (Wangnieskeim, Kr. Heiligenbeil).

**Settlements** (see Figs. 1, 10): 220 Berezhkovskoje 1; 221 Berezhkovskoje 2; 222 Berezhkovskoje 3; 223 Bol'shoje Isakovo 1; 224 Bol'shoje Isakovo 2; 225 Vyborgskoje /Lunino (Pelohnen, Kr. Wehlau); 228 Zaozerje 1; 229 – Zaozerje 2; 230 Zaozerje 3; 231 – Zaozerje 4; 232 Izobilnoje 1; 233 Istrovka 1 (Schaberau, Kr. Wehlau); 234 Istrovka 3; 235 Istrovka 4; 237 Kudrjavcevo 2 (Kuglacken, Kr. Wehlau); 238 Kudrjavcevo 3; 239 – Novaja Derevnja 1; 240 Novaja Derevnja 2; 241 Novaja Derevnja 3; 243 Rodniki 1; 244 Rodniki 2; 245 Sinjavino 2 (Kampischkehmen, Kr. Gumbinnen); 247 Timofeevka 1 (Tammowischken, Kr. Insterburg); 248 Fevral'skoje (Kirschkeim, Kr. Labiau); 249 Bol'shoje Isakovo; 250 Pribrezhnoje 1; 256 Kumachevo (Bladau, Kr. Königsberg); 259 Nekrasovo 1 (Mukuhnen, Kr. Heiligenbeil); 260 Berezovka (Schugsten, Kr. Fischhausen); 261 Sirenevka (Siemohnen, Kr. Insterburg); 265 Pervomajskoje 1; 362 Gvardejsk 1 (Waldschlößchen, Kr. Tapiau); 363 Gvardejsk 2 (Milchbude, Kr. Tapiau); 364 Gvardejsk 3; 365 Istrovka 2 (Schaberau, Kr. Wehlau); 366 Taplaki 2 (Taplacken, Kr. Wehlau); 367 Taplaki 1; 368 Istrovka 5; 370 Oktjabr'skoje; 371 Rzhevskoje 1; 372 Timofeevka 2 (Tammowischken, Kr. Insterburg); 374 Zaozerje 5; 375 – Pribrezhnoje 2; 376 Solnechnoje; 377 Nizovje; 383 Lunino (Sanditten, Kr. Wehlau); 385 Petino 1; 386 Petino 2; 387; Rovnoje 1.

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# ROMĖNIŠKOJO LAIKOTARPIO DOLLKEIMO-KOVROVO / SEMBOS-NOTANGOS KULTŪROS RYTINIŲ PAKRAŠČIŲ ARCHEOLOGIJOS PAMINKLŲ KRAŠTOVAIZDŽIO IR ERDVINIO IŠSIDĖSTYMO ANALIZĖ

**OLGA KHOMIAKOVA**

## Santrauka

Straipsnis skirtas romėniškojo laikotarpio Dollkeimo-Kovrovo kultūros rytinės dalies paminklų kultūrinio kraštovaizdžio charakteristikai. Rytinė Dollkeimo-Kovrovo kultūros arealo dalis – tai Priegliaus ir Deimenos (Deimos) upių slėniai ir Įsruties upė, susieti su Vakarų Lietuvos kultūromis (1–10 pav.).

Straipsnyje pirmą kartą paskelbta apibendrinta prieškario vokiečių tyrinėtojų medžiaga, XX a. antrosios pusės mokslinių ataskaitų ir autorės žvalgomųjų darbų duomenys. Kraštovaizdžio situacijos charakteristika grindžiama GIS analizės metodais. Tyrimas nukreiptas į romėniškojo laikotarpio paminklus, esančius Priegliaus ir Deimenos slėniuose rytiniame kultūros paribyje. Lyginamajai analizei naudoti „kultūrinio branduolio“ kapinynai (3, 9 pav.). Analizuojamas erdvinis kapinynų ir gyvenviečių išsidėstymas ir šios analizės pagrindu pateikiama romėniškojo laikotarpio Dollkeimo-Kovrovo, arba Sembos-Notangos, kultūros vystymosi dinamika ir kontaktinių zonų hipotezės patikra. Erdvinės analizės duomenys leidžia nagrinėti Sembos-Notangos kultūrą kaip monolitinę bendriją, besivystančią iš „branduolio“ į periferiją. Didelė tikimybė, kad vėlyvojo romėniškojo laikotarpio laikais rytinė Dollkeimo-Kovrovo kultūros arealo dalis buvo ne mažiau svarbi nei Vyslos įlankos pakrančių regionas.